

SEQUENCE LISTING

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Tsai, Shih-Chong

<120> P193 PROTEINS AND NUCLEIC ACIDS, AND USES THEREOF

<130> IU99-PCT

<140> Not Yet Known

<141> 2000-08-23

<150> 60/150,266

<151> 1999-08-23

<160> 4

<170> PatentIn Ver. 2.1

<210> 1

<211> 5217

<212> DNA

<213> Mus musculus

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<221> CDS

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500 505 510

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Arg Val Leu Asp Tyr Asp Met Leu Pro Glu Leu Thr Val Pro Val Asp
515 520 525

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Pro Glu Gly Glu Val Leu Val Glu Leu Glu Gln Ala Leu Gly Ser Glu
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1981

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625 630 635 640

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690 695 700

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725 730 735

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Val Leu Glu Lys His Arg Gly Lys Leu Glu Leu Ala Gln Glu Leu Arg
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Asp Met Val Ser Lys Cys Glu Lys His Ala His Leu Tyr Arg Lys Leu
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770 775 780

gaa gac cac aga cga acc cac cgg ccc atc caa atc cca ttc ttt gat
2461

Glu Asp His Arg Arg Thr His Arg Pro Ile Gln Ile Pro Phe Phe Asp
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2557															
Asn	Arg	Tyr	Trp	Glu	Lys	Val	Glu	Val	Ser	Ser	Asn	Pro	Gln	Arg	Ala
			820					825					830		
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2605															
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2701															
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2797															
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ctc	ctg	gag	aac	ctg	acc	cgc	ttc	tgg	ccc	atc	atc	caa	atc	aga	ata
2845															
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	930					935					940				
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2941															
Val	Leu	Gly	Pro	Lys	Pro	Thr	Phe	Trp	Pro	Val	Phe	Arg	Glu	Gln	Leu
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tgc	cgg	cac	acg	cgc	ctc	ttc	tac	atg	gtt	cgg	gcc	cag	gca	tgg	agt
2989															
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acc agc tcc ttg ggc tgg ctg ctg gat cag tac ttg gga tgc agg gag 3229		
Thr Ser Ser Leu Gly Trp Leu Leu Asp Gln Tyr Leu Gly Cys Arg Glu 1045	1050	1055
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Ala Ala Tyr Asn Pro Gln Ser Arg Ala Ala Ala Phe Ser Ser Arg Val 1060	1065	1070
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Arg Arg Leu Thr His Leu Leu Val His Val Glu Pro Arg Glu Ala Ala 1075	1080	1085
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Pro Pro Val Val Ala Ile Pro Arg Ser Lys Gly Arg Asn Arg Ile His 1090	1095	1100
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Asp Trp Ser Tyr Leu Ile Thr Arg Gly Leu Pro Ser Ser Ile Met Lys 1105	1110	1115 1120
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Glu Arg Tyr Tyr Val Leu Gln Lys Ser Ser Ser Glu Leu Phe Gly Pro 1155	1160	1165
cga gct gcc ttc ttg ctg gca atg cgg aat ggc tgt gct gat gct gtg 3613		
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cgg agg ctc cct ttc ctc agg gcc gcc cat gtg aag cag cag ttt gct 3661		
Arg Arg Leu Pro Phe Leu Arg Ala Ala His Val Lys Gln Gln Phe Ala 1185	1190	1195 1200
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Ile Phe Ser Pro Leu Glu Ile Ala Thr Thr Phe Glu His Tyr Tyr Gln
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3853

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3901

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3949

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1285 1290 1295

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4093

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1345 1350 1355 1360

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4189

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Val Ser Val Glu Ser Leu Gln Ala Ile Ser Glu Leu Pro Pro Asp Val
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4669

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4717

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4765

Lys Arg Arg Asn Leu Leu Asn Cys Leu Val Val Arg Ile Leu Lys Ala
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4813

His Gly Asp Glu Gly Leu His Val Asp Arg Leu Val Tyr Leu Val Leu
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4861

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ctc ggc agg gga gca acc tgc agg agc tct gat gtc ctc tcc tgc atc
4909

Leu Gly Arg Gly Ala Thr Cys Arg Ser Ser Asp Val Leu Ser Cys Ile
1605 1610 1615

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4957

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5005

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1635 1640 1645

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5053

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 Leu Leu Trp Met Ser Asp Glu Ile Tyr Ala Asn Cys His Lys Met
 65 70 75 80
 Leu Gly Glu Asn Gly Gln Val Ile Ala Pro Ser Arg Glu Ser Thr Glu
 85 90 95
 Ala Gly Ala Leu Asp Lys Ser Val Leu Gly Glu Met Glu Thr Asp Val
 100 105 110
 Lys Ser Leu Ile Gln Arg Ala Leu Arg Gln Leu Glu Glu Cys Val Gly
 115 120 125
 Thr Val Pro Pro Ala Pro Leu Leu His Thr Val His Val Leu Ser Ala
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 Tyr Ala Ser Ile Glu Pro Leu Thr Gly Ile Phe Lys Asp Arg Arg Val
 145 150 155 160
 Val Asn Leu Leu Met His Met Leu Ser Ser Pro Asp Tyr Gln Ile Arg
 165 170 175
 Trp Ser Ala Gly Arg Met Ile Gln Ala Leu Ser Ser His Asp Ala Gly
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 195 200 205
 Lys His Leu Asp Phe Asp Ser Arg Cys Ala Leu Leu Ala Leu Phe Ala
 210 215 220
 Gln Ala Thr Leu Thr Glu His Pro Met Ser Phe Glu Gly Val Gln Leu
 225 230 235 240
 Pro Gln Val Pro Gly Arg Leu Leu Phe Ser Leu Val Lys Arg Tyr Leu
 245 250 255
 His Val Thr Phe Leu Leu Asp Arg Leu Asn Gly Asp Ala Gly Asp Gln
 260 265 270
 Gly Ala Gln Asn Asn Phe Ser Pro Glu Glu Leu Asn Val Gly Arg Gly
 275 280 285
 Arg Leu Glu Leu Glu Phe Ser Met Ala Met Gly Thr Leu Ile Ser Glu
 290 295 300

Leu Val Gln Ala Met Arg Trp Asp Gly Ala Ser Ser Arg Pro Glu Ser
 305 310 315 320
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 Ala Ser Phe Asn Thr Tyr Ala Leu Tyr Val Arg Asp Thr Leu Arg Pro
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 370 375 380
 Asp Glu Gly Gln Phe Arg Gln Ser Asn Asp Gly Val Pro Pro Ala Gln
 385 390 395 400
 Val Leu Trp Asp Ser Thr Gly His Thr Tyr Trp Val His Trp His Met
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 Leu Glu Ile Leu Gly Phe Glu Glu Asp Ile Glu Asp Val Ile Asp Ile
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 Ala Leu Arg Asp Leu Phe Ser Cys Ser Val Tyr Arg Lys Tyr Gly Pro
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 Pro Asn Leu Phe Gly Ala Asn Glu Glu Ser Glu Ala Lys Asp Pro Pro
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 Leu Gln Ser Ala Ser Pro Ala Leu Gln Arg Leu Val Glu Ser Leu Gly
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 Pro Glu Gly Glu Val Leu Val Glu Leu Glu Gln Ala Leu Gly Ser Glu
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 Val Leu Glu Lys His Arg Gly Lys Leu Glu Leu Ala Gln Glu Leu Arg
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 Asp Met Val Ser Lys Cys Glu Lys His Ala His Leu Tyr Arg Lys Leu
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 Thr Thr Asn Ile Leu Gly Gly Cys Ile Gln Met Val Leu Gly Gln Ile
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 Met Val Gly Glu Leu Arg Tyr Arg Glu
 1 5
 ttc agg gtg ccc ctg ggg ccc ggc tta cat gcc tat cct gat gag ctg 161
 Phe Arg Val Pro Leu Gly Pro Gly Leu His Ala Tyr Pro Asp Glu Leu
 10 15 20 25
 atc cgc cag cgc gtg ggc cat gat ggg cat cct gag tac cag atc cgt 209

Ile	Arg	Gln	Arg	Val	Gly	His	Asp	Gly	His	Pro	Glu	Tyr	Gln	Ile	Arg		
				30					35					40			
tgg	ctc	atc	ctg	cgg	cgt	ggc	gat	gag	ggg	gac	ggg	ggc	tct	ggc	caa	257	
Trp	Leu	Ile	Leu	Arg	Arg	Gly	Asp	Glu	Gly	Asp	Gly	Gly	Ser	Gly	Gln		
			45					50					55				
gtg	gac	tgc	aag	gct	gag	cac	atc	ctg	ctg	tgg	atg	tcc	aag	gat	gag	305	
Val	Asp	Cys	Lys	Ala	Glu	His	Ile	Leu	Leu	Trp	Met	Ser	Lys	Asp	Glu		
		60					65					70					
atc	tat	gcc	aac	tgc	cac	aag	atg	ctg	ggc	gag	gat	ggc	cag	gtc	atc	353	
Ile	Tyr	Ala	Asn	Cys	His	Lys	Met	Leu	Gly	Glu	Asp	Gly	Gln	Val	Ile		
	75					80					85						
ggg	ccc	tcc	cag	gag	tct	gca	ggg	gag	gtt	ggg	gcc	ctg	gac	aaa	tct	401	
Gly	Pro	Ser	Gln	Glu	Ser	Ala	Gly	Glu	Val	Gly	Ala	Leu	Asp	Lys	Ser		
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gtg	ctg	gag	gag	atg	gaa	acc	gat	gtg	aag	tcc	ctc	att	cag	aga	gcc	449	
Val	Leu	Glu	Glu	Met	Glu	Thr	Asp	Val	Lys	Ser	Leu	Ile	Gln	Arg	Ala		
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ctt	cgg	cag	ctg	gag	gag	tgt	gtg	ggc	act	atc	cct	cct	gct	cct	cta	497	
Leu	Arg	Gln	Leu	Glu	Glu	Cys	Val	Gly	Thr	Ile	Pro	Pro	Ala	Pro	Leu		
			125					130					135				
ctt	cac	act	gtc	cac	gtg	ctc	agc	gcc	tat	gcc	agc	att	gag	ccc	ctc	545	
Leu	His	Thr	Val	His	Val	Leu	Ser	Ala	Tyr	Ala	Ser	Ile	Glu	Pro	Leu		
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act	gga	gta	ttc	aag	gac	cca	agg	gtc	ctg	gac	ttg	ctc	atg	cac	atg	593	
Thr	Gly	Val	Phe	Lys	Asp	Pro	Arg	Val	Leu	Asp	Leu	Leu	Met	His	Met		
	155					160					165						
ttg	agt	agt	cct	gat	tat	cag	att	cgc	tgg	agt	gca	ggc	cgg	atg	ata	641	
Leu	Ser	Ser	Pro	Asp	Tyr	Gln	Ile	Arg	Trp	Ser	Ala	Gly	Arg	Met	Ile		
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caa	gcc	ctg	tcc	tcc	cat	gac	gct	ggg	acc	cgg	act	cag	atc	ctt	ctg	689	
Gln	Ala	Leu	Ser	Ser	His	Asp	Ala	Gly	Thr	Arg	Thr	Gln	Ile	Leu	Leu		
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tca	ctg	agc	caa	caa	gaa	gcc	att	gag	aaa	cac	ctg	gat	ttt	gac	agc	737	
Ser	Leu	Ser	Gln	Gln	Glu	Ala	Ile	Glu	Lys	His	Leu	Asp	Phe	Asp	Ser		
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cgc	tgt	gct	ctg	cta	gca	ctg	ttt	gca	cag	gcc	acg	ctc	tct	gaa	cac	785	
Arg	Cys	Ala	Leu	Leu	Ala	Leu	Phe	Ala	Gln	Ala	Thr	Leu	Ser	Glu	His		
		220					225					230					
ccc	atg	tct	ttc	gag	ggc	att	cag	cta	cca	cag	gtc	cca	gga	agg	gtg	833	
Pro	Met	Ser	Phe	Glu	Gly	Ile	Gln	Leu	Pro	Gln	Val	Pro	Gly	Arg	Val		
	235					240					245						
ctc	ttc	tcc	ctg	gtg	aag	cgg	tat	ttg	cat	gtc	acc	tcg	ctc	ctg	gat	881	
Leu	Phe	Ser	Leu	Val	Lys	Arg	Tyr	Leu	His	Val	Thr	Ser	Leu	Leu	Asp		
	250				255					260					265		
cag	ctg	aac	gac	agt	gct	gcg	gag	cca	gga	gcc	cag	aac	acc	tct	gct	929	
Gln	Leu	Asn	Asp	Ser	Ala	Ala	Glu	Pro	Gly	Ala	Gln	Asn	Thr	Ser	Ala		
				270				275					280				
cct	gag	gag	ttg	agt	ggg	gag	agg	ggt	caa	ctg	gag	ctg	gag	ttc	agt	977	
Pro	Glu	Glu	Leu	Ser	Gly	Glu	Arg	Gly	Gln	Leu	Glu	Leu	Glu	Phe	Ser		
			285					290					295				

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1025

Met Ala Met Gly Thr Leu Ile Ser Glu Leu Val Gln Ala Met Arg Trp
300 305 310

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1073

Asp Gln Ala Ser Asp Arg Pro Arg Ser Ser Ala Arg Ser Pro Gly Ser
315 320 325

atc ttc cag cct cag ctg gca gat gtg agc cca ggg ctc ccc gct gcc
1121

Ile Phe Gln Pro Gln Leu Ala Asp Val Ser Pro Gly Leu Pro Ala Ala
330 335 340 345

cag gct cag ccc tcc ttc agg agg tca aga cgt ttt cgc cct cgt tct
1169

Gln Ala Gln Pro Ser Phe Arg Arg Ser Arg Arg Phe Arg Pro Arg Ser
350 355 360

gag ttc gca agt ggc aat acc tat gct ttg tat gtg cgg gac aca ctg
1217

Glu Phe Ala Ser Gly Asn Thr Tyr Ala Leu Tyr Val Arg Asp Thr Leu
365 370 375

cag ccg ggg atg cga gtg cgg atg ctg gat gat tat gag gag atc agt
1265

Gln Pro Gly Met Arg Val Arg Met Leu Asp Asp Tyr Glu Glu Ile Ser
380 385 390

gcc ggg gat gag ggc gag ttt cgg cag agc aac aac ggt gtg cct cct
1313

Ala Gly Asp Glu Gly Glu Phe Arg Gln Ser Asn Asn Gly Val Pro Pro
395 400 405

gtg cag gta ttt tgg gag tca aca ggc cgc acc tat tgg gtg cac tgg
1361

Val Gln Val Phe Trp Glu Ser Thr Gly Arg Thr Tyr Trp Val His Trp
410 415 420 425

cac atg ctg gag atc ttg ggc ttt gag gaa gac att gag gac atg gtt
1409

His Met Leu Glu Ile Leu Gly Phe Glu Glu Asp Ile Glu Asp Met Val
430 435 440

gag gct gat gag tac caa ggg gca gtg gcc agt aga gtc ctg ggt aga
1457

Glu Ala Asp Glu Tyr Gln Gly Ala Val Ala Ser Arg Val Leu Gly Arg
445 450 455

gcc ctg cct gcc tgg cgc tgg agg ccc atg aca gaa ctc tat gct gtg
1505

Ala Leu Pro Ala Trp Arg Trp Arg Pro Met Thr Glu Leu Tyr Ala Val
460 465 470

cct tat gtg ctg cct gag gat gag gac act gag gag tgt gaa cac ctg
1553

Pro Tyr Val Leu Pro Glu Asp Glu Asp Thr Glu Glu Cys Glu His Leu
475 480 485

acc ctg gct gag tgg tgg gaa ctc ctc ttc ttc atc aag aag ctg gat
1601

Thr Leu Ala Glu Trp Trp Glu Leu Leu Phe Phe Ile Lys Lys Leu Asp
490 495 500 505

gga cct gac cat cag gag gtt ctc cag atc ctc cag gag aac cta gat
1649

Gly Pro Asp His Gln Glu Val Leu Gln Ile Leu Gln Glu Asn Leu Asp
510 515 520

ggg gag att ctg gat gat gag atc cta gct gaa ctg gcc gtg ccc ata
1697

Gly Glu Ile Leu Asp Asp Glu Ile Leu Ala Glu Leu Ala Val Pro Ile
525 530 535

gaa ttg gcc cag gac ttg ctg ctg act ctg cca cag cga ctc aat gac
1745

Glu Leu Ala Gln Asp Leu Leu Leu Thr Leu Pro Gln Arg Leu Asn Asp
540 545 550

agt gcc ctc agg gac ctg atc aac tgc cat gtc tac aag aag tat ggg
1793

Ser Ala Leu Arg Asp Leu Ile Asn Cys His Val Tyr Lys Lys Tyr Gly
555 560 565

cct gaa gcc cta gca ggg aac caa gcc tac cca tcc ctt cta gaa gcc
1841

Pro Glu Ala Leu Ala Gly Asn Gln Ala Tyr Pro Ser Leu Leu Glu Ala
570 575 580 585

caa gaa gat gtc ctc ctg cta gac gcg cag gcc cag gct aag gac tca
1889

Gln Glu Asp Val Leu Leu Leu Asp Ala Gln Ala Gln Ala Lys Asp Ser
590 595 600

gaa gat gca gcc aaa gtg gaa gca aaa gaa ccc cca tct cag agt ccc
1937

Glu Asp Ala Ala Lys Val Glu Ala Lys Glu Pro Pro Ser Gln Ser Pro
605 610 615

aac act ccc ctg cag cgt ctg gtg gag ggt tat ggt cca gct ggg aaa
1985

Asn Thr Pro Leu Gln Arg Leu Val Glu Gly Tyr Gly Pro Ala Gly Lys
620 625 630

atc ctc ctg gat cta gag caa gcc ctc agc tca gag ggg acc cag gag
2033

Ile Leu Leu Asp Leu Glu Gln Ala Leu Ser Ser Glu Gly Thr Gln Glu
635 640 645

aac aag gtc aag cca ctc ctg ctg cag ctg cag cgg cag ccg cag ccc
2081

Asn Lys Val Lys Pro Leu Leu Leu Gln Leu Gln Arg Gln Pro Gln Pro
650 655 660 665

ttc ctg gca ctg atg cag agc ctg gac act ccg gag act aac agg acc
2129

Phe Leu Ala Leu Met Gln Ser Leu Asp Thr Pro Glu Thr Asn Arg Thr
670 675 680

ctg cac ctg act gtg ctg aga atc ctg aag cag ctg gtg gac ttc ccc
2177

Leu His Leu Thr Val Leu Arg Ile Leu Lys Gln Leu Val Asp Phe Pro
685 690 695

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2225

Glu Ala Leu Leu Leu Pro Trp His Glu Ala Val Asp Ala Cys Met Ala
700 705 710

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2273

Cys Leu Arg Ser Pro Asn Thr Asp Arg Glu Val Leu Gln Glu Leu Ile
715 720 725

ttc ttc ctg cac cgc ctg acc tca gtg agc agg gac tat gcc gtg gtg
2321

Phe Phe Leu His Arg Leu Thr Ser Val Ser Arg Asp Tyr Ala Val Val
730 735 740 745

ctg aat cag ctg gga gca aga gac gct atc tcc aag gcc ctg gaa aag
2369

Leu Asn Gln Leu Gly Ala Arg Asp Ala Ile Ser Lys Ala Leu Glu Lys
750 755 760

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2417

His Leu Gly Lys Leu Glu Leu Ala Gln Glu Leu Arg Asp Met Val Phe
765 770 775

aag tgt gag aag cat gcc cac ctc tac cgc aaa ctc atc acc aac atc
2465

Lys Cys Glu Lys His Ala His Leu Tyr Arg Lys Leu Ile Thr Asn Ile
780 785 790

ctg gga ggc tgc atc cag atg gtg ctg ggc cag atc gaa gac cac aga
2513

Leu Gly Gly Cys Ile Gln Met Val Leu Gly Gln Ile Glu Asp His Arg
795 800 805

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2561

Arg Thr His Arg Pro Ile Asn Ile Pro Phe Phe Asp Val Phe Leu Arg
810 815 820 825

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2609

Tyr Leu Cys Gln Gly Ser Ser Val Glu Val Lys Glu Asp Lys Cys Trp
830 835 840

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2657

Glu Lys Val Glu Val Ser Ser Asn Pro His Arg Ala Ser Lys Leu Thr
845 850 855

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2705

Asp His Asn Pro Lys Thr Tyr Trp Glu Ser Asn Gly Ser Ala Gly Ser
860 865 870

cac tac atc acc ctg cac atg cgc cgg ggc atc ctc atc agg caa ctg
2753

His Tyr Ile Thr Leu His Met Arg Arg Gly Ile Leu Ile Arg Gln Leu
875 880 885

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2801

Thr Leu Leu Val Ala Ser Glu Asp Ser Ser Tyr Met Pro Ala Arg Val
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Val Val Cys Gly Gly Asp Ser Thr Ser Ser Leu His Thr Glu Leu Asn
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2897

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 Gly Trp Leu Leu Asp Gln Tyr Leu Glu Cys Gln Glu Ala Val Phe Asn
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 1115 1120 1125
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 1180 1185 1190

 ttg ctg gcg ctg caa aat ggc tgt gcg gga gcc ttg ctg aag ctc cct
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 Leu Leu Ala Leu Gln Asn Gly Cys Ala Gly Ala Leu Leu Lys Leu Pro
 1195 1200 1205

 ttt ctc aaa gct gcc cac gtg agt gag cag ttc gcc cgg cac att gac
 3761
 Phe Leu Lys Ala Ala His Val Ser Glu Gln Phe Ala Arg His Ile Asp
 1210 1215 1220 1225

 cag cag atc cag ggc agc cgg atc ggt gga gcc cag gaa atg gag agg
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 Gln Gln Ile Gln Gly Ser Arg Ile Gly Gly Ala Gln Glu Met Glu Arg
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 3857
 Leu Ala Gln Leu Gln Gln Cys Leu Gln Ala Val Leu Ile Phe Ser Gly
 1245 1250 1255

 ttg gag ata gcc acc act ttt gag cat tat tac cag cac tac atg gcg
 3905
 Leu Glu Ile Ala Thr Thr Phe Glu His Tyr Tyr Gln His Tyr Met Ala
 1260 1265 1270

 gac cgt ctc ctg ggc gtg gtc tgc agc tgg ctg gag ggg gcc gtg ctg
 3953
 Asp Arg Leu Leu Gly Val Val Ser Ser Trp Leu Glu Gly Ala Val Leu
 1275 1280 1285

 gag cag atc ggt ccc tgc ttc ccc aac cgc ctc ccc cag cag atg ttg
 4001
 Glu Gln Ile Gly Pro Cys Phe Pro Asn Arg Leu Pro Gln Gln Met Leu
 1290 1295 1300 1305

 cag agc ctg agc acc tct aag gag ctg cag cgc cag ttc cac gtc tac
 4049
 Gln Ser Leu Ser Thr Ser Lys Glu Leu Gln Arg Gln Phe His Val Tyr
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 cag ctc cag cag ctg gat cag gaa ctc cta aag ctg gag gat aca gag
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 Gln Leu Gln Gln Leu Asp Gln Glu Leu Leu Lys Leu Glu Asp Thr Glu
 1325 1330 1335

 aag aaa ata cag gtg ggc ctt ggg gcc agt ggc aag gag cac aag agc
 4145
 Lys Lys Ile Gln Val Gly Leu Gly Ala Ser Gly Lys Glu His Lys Ser
 1340 1345 1350

gag aag gaa gag gaa gct ggg gca gca gca gtg gtg gat gtg gcg gag
4193
Glu Lys Glu Glu Glu Ala Gly Ala Ala Val Val Asp Val Ala Glu
1355 1360 1365

gga gag gag gaa gag gag gag aat gag gac ctc tac tat gaa ggg gca
4241
Gly Glu Glu Glu Glu Glu Asn Glu Asp Leu Tyr Tyr Glu Gly Ala
1370 1375 1380 1385

atg cca gaa gtg tct gtg ctt gtc ctg tcc cga cac tcc tgg cct gtt
4289
Met Pro Glu Val Ser Val Leu Val Leu Ser Arg His Ser Trp Pro Val
1390 1395 1400

gcc tca atc tgc cac aca ctg aac ccc aga acc tgc ctg ccc tcc tac
4337
Ala Ser Ile Cys His Thr Leu Asn Pro Arg Thr Cys Leu Pro Ser Tyr
1405 1410 1415

ctg agg ggc act ttg aac aga tac tcc aac ttc tac aac aag agt cag
4385
Leu Arg Gly Thr Leu Asn Arg Tyr Ser Asn Phe Tyr Asn Lys Ser Gln
1420 1425 1430

agc cac cct gcc ctt gag cga ggc tca cag agg cga ctg cag tgg acg
4433
Ser His Pro Ala Leu Glu Arg Gly Ser Gln Arg Arg Leu Gln Trp Thr
1435 1440 1445

tgg ctg ggc tgg gct gag ctg cag ttt ggg aac cag acc ctg cat gtg
4481
Trp Leu Gly Trp Ala Glu Leu Gln Phe Gly Asn Gln Thr Leu His Val
1450 1455 1460 1465

tcc acc gtg cag atg tgg cta ctg ctg tat ctc aac gac ctg aag gcg
4529
Ser Thr Val Gln Met Trp Leu Leu Leu Tyr Leu Asn Asp Leu Lys Ala
1470 1475 1480

gtc tct gtg gag agt ctg ctg gcg ttc tca ggg ctc tcc gca gac atg
4577
Val Ser Val Glu Ser Leu Leu Ala Phe Ser Gly Leu Ser Ala Asp Met
1485 1490 1495

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Leu Asn Gln Ala Ile Gly Pro Leu Thr Ser Ser Arg Gly Pro Leu Asp
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4721
Gly Ser Lys Glu Pro Arg Ser Arg Trp Asp Ile Val Arg Leu Ile Pro
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cct cag acg tac ctg caa gct gag ggt gaa gac ggc cag aac ttg gag
4769
Pro Gln Thr Tyr Leu Gln Ala Glu Gly Glu Asp Gly Gln Asn Leu Glu
1550 1555 1560

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4817
Lys Arg Arg Asn Leu Leu Asn Cys Leu Ile Val Arg Ile Leu Lys Ala
1565 1570 1575

cat gga gat gag ggg ctg cac att gac cag ctt gtc tgt ctg gtg ctg
4865
His Gly Asp Glu Gly Leu His Ile Asp Gln Leu Val Cys Leu Val Leu
1580 1585 1590

gag gct tgg cag aag ggc ccg tgt cct ccc agg ggt ttg gtc agc agc
4913
Glu Ala Trp Gln Lys Gly Pro Cys Pro Pro Arg Gly Leu Val Ser Ser
1595 1600 1605

ctt ggt aag ggg tct gca tgc agc agc act gac gtc ctc tcc tgc atc
4961
Leu Gly Lys Gly Ser Ala Cys Ser Ser Thr Asp Val Leu Ser Cys Ile
1610 1615 1620 1625

cta cac ctc ctg ggc aag ggc acg ctg aga cgc cat gac gac cgg ccc
5009
Leu His Leu Leu Gly Lys Gly Thr Leu Arg Arg His Asp Asp Arg Pro
1630 1635 1640

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5057
Gln Val Leu Ser Tyr Ala Val Pro Val Thr Val Met Glu Pro His Thr
1645 1650 1655

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5105
Glu Ser Leu Asn Pro Gly Ser Ser Gly Pro Asn Pro Pro Leu Thr Phe
1660 1665 1670

cat acc cta cag att cgc tcc cgg ggt gtg ccc tat gcc tcc tgc act
5153
His Thr Leu Gln Ile Arg Ser Arg Gly Val Pro Tyr Ala Ser Cys Thr
1675 1680 1685

gcc acc cag agc ttc tct acc ttc cgg tag ccctagactt ggggtcaggg
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1690 1695

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5253

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<212> PRT
<213> Homo sapiens

<400> 4
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20 25 30
Asp Gly His Pro Glu Tyr Gln Ile Arg Trp Leu Ile Leu Arg Arg Gly
35 40 45
Asp Glu Gly Asp Gly Gly Ser Gly Gln Val Asp Cys Lys Ala Glu His
50 55 60
Ile Leu Leu Trp Met Ser Lys Asp Glu Ile Tyr Ala Asn Cys His Lys
65 70 75 80
Met Leu Gly Glu Asp Gly Gln Val Ile Gly Pro Ser Gln Glu Ser Ala

				85					90					95		
Gly	Glu	Val	Gly	Ala	Leu	Asp	Lys	Ser	Val	Leu	Glu	Glu	Met	Glu	Thr	
			100					105					110			
Asp	Val	Lys	Ser	Leu	Ile	Gln	Arg	Ala	Leu	Arg	Gln	Leu	Glu	Glu	Cys	
		115					120					125				
Val	Gly	Thr	Ile	Pro	Pro	Ala	Pro	Leu	Leu	His	Thr	Val	His	Val	Leu	
		130				135					140					
Ser	Ala	Tyr	Ala	Ser	Ile	Glu	Pro	Leu	Thr	Gly	Val	Phe	Lys	Asp	Pro	
145					150					155				160		
Arg	Val	Leu	Asp	Leu	Leu	Met	His	Met	Leu	Ser	Ser	Pro	Asp	Tyr	Gln	
				165					170					175		
Ile	Arg	Trp	Ser	Ala	Gly	Arg	Met	Ile	Gln	Ala	Leu	Ser	Ser	His	Asp	
			180					185					190			
Ala	Gly	Thr	Arg	Thr	Gln	Ile	Leu	Leu	Ser	Leu	Ser	Gln	Gln	Glu	Ala	
		195					200					205				
Ile	Glu	Lys	His	Leu	Asp	Phe	Asp	Ser	Arg	Cys	Ala	Leu	Leu	Ala	Leu	
		210				215					220					
Phe	Ala	Gln	Ala	Thr	Leu	Ser	Glu	His	Pro	Met	Ser	Phe	Glu	Gly	Ile	
225					230					235				240		
Gln	Leu	Pro	Gln	Val	Pro	Gly	Arg	Val	Leu	Phe	Ser	Leu	Val	Lys	Arg	
				245					250					255		
Tyr	Leu	His	Val	Thr	Ser	Leu	Leu	Asp	Gln	Leu	Asn	Asp	Ser	Ala	Ala	
			260					265					270			
Glu	Pro	Gly	Ala	Gln	Asn	Thr	Ser	Ala	Pro	Glu	Glu	Leu	Ser	Gly	Glu	
		275					280					285				
Arg	Gly	Gln	Leu	Glu	Leu	Glu	Phe	Ser	Met	Ala	Met	Gly	Thr	Leu	Ile	
		290				295					300					
Ser	Glu	Leu	Val	Gln	Ala	Met	Arg	Trp	Asp	Gln	Ala	Ser	Asp	Arg	Pro	
305					310					315				320		
Arg	Ser	Ser	Ala	Arg	Ser	Pro	Gly	Ser	Ile	Phe	Gln	Pro	Gln	Leu	Ala	
				325					330					335		
Asp	Val	Ser	Pro	Gly	Leu	Pro	Ala	Ala	Gln	Ala	Gln	Pro	Ser	Phe	Arg	
			340					345					350			
Arg	Ser	Arg	Arg	Phe	Arg	Pro	Arg	Ser	Glu	Phe	Ala	Ser	Gly	Asn	Thr	
		355					360					365				
Tyr	Ala	Leu	Tyr	Val	Arg	Asp	Thr	Leu	Gln	Pro	Gly	Met	Arg	Val	Arg	
		370				375					380					
Met	Leu	Asp	Asp	Tyr	Glu	Glu	Ile	Ser	Ala	Gly	Asp	Glu	Gly	Glu	Phe	
385					390					395				400		
Arg	Gln	Ser	Asn	Asn	Gly	Val	Pro	Pro	Val	Gln	Val	Phe	Trp	Glu	Ser	
				405					410					415		
Thr	Gly	Arg	Thr	Tyr	Trp	Val	His	Trp	His	Met	Leu	Glu	Ile	Leu	Gly	
			420													

610	615	620
Val Glu Gly Tyr Gly Pro	Ala Gly Lys Ile Leu	Leu Asp Leu Glu Gln
625	630	635
Ala Leu Ser Ser Glu Gly	Thr Gln Glu Asn Lys	Val Lys Pro Leu Leu
645	650	655
Leu Gln Leu Gln Arg Gln	Pro Gln Pro Phe Leu	Ala Leu Met Gln Ser
660	665	670
Leu Asp Thr Pro Glu Thr	Asn Arg Thr Leu His	Leu Thr Val Leu Arg
675	680	685
Ile Leu Lys Gln Leu Val	Asp Phe Pro Glu Ala	Leu Leu Leu Pro Trp
690	695	700
His Glu Ala Val Asp Ala	Cys Met Ala Cys Leu	Arg Ser Pro Asn Thr
705	710	715
Asp Arg Glu Val Leu Gln	Glu Leu Ile Phe Phe	Leu His Arg Leu Thr
725	730	735
Ser Val Ser Arg Asp Tyr	Ala Val Val Leu Asn	Gln Leu Gly Ala Arg
740	745	750
Asp Ala Ile Ser Lys Ala	Leu Glu Lys His Leu	Gly Lys Leu Glu Leu
755	760	765
Ala Gln Glu Leu Arg Asp	Met Val Phe Lys Cys	Glu Lys His Ala His
770	775	780
Leu Tyr Arg Lys Leu Ile	Thr Asn Ile Leu Gly	Gly Cys Ile Gln Met
785	790	795
Val Leu Gly Gln Ile Glu	Asp His Arg Arg Thr	His Arg Pro Ile Asn
805	810	815
Ile Pro Phe Phe Asp Val	Phe Leu Arg Tyr Leu	Cys Gln Gly Ser Ser
820	825	830
Val Glu Val Lys Glu Asp	Lys Cys Trp Glu Lys	Val Glu Val Ser Ser
835	840	845
Asn Pro His Arg Ala Ser	Lys Leu Thr Asp His	Asn Pro Lys Thr Tyr
850	855	860
Trp Glu Ser Asn Gly Ser	Ala Gly Ser His Tyr	Ile Thr Leu His Met
865	870	875
Arg Arg Gly Ile Leu Ile	Arg Gln Leu Thr Leu	Leu Val Ala Ser Glu
885	890	895
Asp Ser Ser Tyr Met Pro	Ala Arg Val Val Cys	Gly Gly Asp Ser
900	905	910
Thr Ser Ser Leu His Thr	Glu Leu Asn Ser Val	Asn Val Met Pro Ser
915	920	925
Ala Ser Arg Val Ile Leu	Leu Glu Asn Leu Thr	Arg Phe Trp Pro Ile
930	935	940
Ile Gln Ile Arg Ile Lys	Arg Cys Gln Gln Gly	Gly Ile Asp Thr Arg
945	950	955
Ile Arg Gly Leu Glu Ile	Leu Gly Pro Lys Pro	Thr Phe Trp Pro Val
965	970	975
Phe Arg Glu Gln Leu Cys	Arg His Thr Arg Leu	Phe Tyr Met Val Arg
980	985	990
Ala Gln Ala Trp Ser Gln	Asp Met Ala Glu Asp	Arg Arg Ser Leu Leu
995	1000	1005
His Leu Ser Ser Arg Leu	Asn Gly Ala Leu Arg	Gln Glu Gln Asn Phe
1010	1015	1020
Ala Asp Arg Phe Leu Pro	Asp Asp Glu Ala Ala	Gln Ala Leu Gly Lys
1025	1030	1035
Thr Cys Trp Glu Ala Leu	Val Ser Pro Val Val	Gln Asn Ile Thr Ser
1045	1050	1055
Pro Asp Glu Asp Gly Ile	Ser Pro Leu Gly Trp	Leu Leu Asp Gln Tyr
1060	1065	1070
Leu Glu Cys Gln Glu Ala	Val Phe Asn Pro Gln	Ser Arg Gly Pro Ala
1075	1080	1085
Phe Phe Ser Arg Val Arg	Arg Leu Thr His Leu	Leu Val His Val Glu
1090	1095	1100
Pro Cys Glu Ala Pro Pro	Pro Val Val Ala Thr	Pro Arg Pro Lys Gly
1105	1110	1115
Arg Asn Arg Ser His Asp	Trp Ser Ser Leu Ala	Thr Arg Gly Leu Pro
1125	1130	1135
Ser Ser Ile Met Arg Asn	Leu Thr Arg Cys Trp	Arg Ala Val Val Glu

1140	1145	1150
Lys Gln Val Asn Asn Phe Leu Thr Ser Ser Trp Arg Asp Asp Asp Phe		
1155	1160	1165
Val Pro Arg Tyr Cys Glu His Phe Asn Ile Leu Gln Asn Ser Ser Ser		
1170	1175	1180
Glu Leu Phe Gly Pro Arg Ala Ala Phe Leu Leu Ala Leu Gln Asn Gly		
1185	1190	1195
Cys Ala Gly Ala Leu Lys Leu Pro Phe Leu Lys Ala Ala His Val		
1205	1210	1215
Ser Glu Gln Phe Ala Arg His Ile Asp Gln Gln Ile Gln Gly Ser Arg		
1220	1225	1230
Ile Gly Gly Ala Gln Glu Met Glu Arg Leu Ala Gln Leu Gln Gln Cys		
1235	1240	1245
Leu Gln Ala Val Leu Ile Phe Ser Gly Leu Glu Ile Ala Thr Thr Phe		
1250	1255	1260
Glu His Tyr Tyr Gln His Tyr Met Ala Asp Arg Leu Leu Gly Val Val		
1265	1270	1275
Ser Ser Trp Leu Glu Gly Ala Val Leu Glu Gln Ile Gly Pro Cys Phe		
1285	1290	1295
Pro Asn Arg Leu Pro Gln Gln Met Leu Gln Ser Leu Ser Thr Ser Lys		
1300	1305	1310
Glu Leu Gln Arg Gln Phe His Val Tyr Gln Leu Gln Gln Leu Asp Gln		
1315	1320	1325
Glu Leu Leu Lys Leu Glu Asp Thr Glu Lys Lys Ile Gln Val Gly Leu		
1330	1335	1340
Gly Ala Ser Gly Lys Glu His Lys Ser Glu Lys Glu Glu Glu Ala Gly		
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Ala Ala Ala Val Val Asp Val Ala Glu Gly Glu Glu Glu Glu Glu		
1365	1370	1375
Asn Glu Asp Leu Tyr Tyr Glu Gly Ala Met Pro Glu Val Ser Val Leu		
1380	1385	1390
Val Leu Ser Arg His Ser Trp Pro Val Ala Ser Ile Cys His Thr Leu		
1395	1400	1405
Asn Pro Arg Thr Cys Leu Pro Ser Tyr Leu Arg Gly Thr Leu Asn Arg		
1410	1415	1420
Tyr Ser Asn Phe Tyr Asn Lys Ser Gln Ser His Pro Ala Leu Glu Arg		
1425	1430	1435
Gly Ser Gln Arg Arg Leu Gln Trp Thr Trp Leu Gly Trp Ala Glu Leu		
1445	1450	1455
Gln Phe Gly Asn Gln Thr Leu His Val Ser Thr Val Gln Met Trp Leu		
1460	1465	1470
Leu Leu Tyr Leu Asn Asp Leu Lys Ala Val Ser Val Glu Ser Leu Leu		
1475	1480	1485
Ala Phe Ser Gly Leu Ser Ala Asp Met Leu Asn Gln Ala Ile Gly Pro		
1490	1495	1500
Leu Thr Ser Ser Arg Gly Pro Leu Asp Leu His Glu Gln Lys Asp Ile		
1505	1510	1515
Pro Gly Gly Val Leu Lys Ile Arg Asp Gly Ser Lys Glu Pro Arg Ser		
1525	1530	1535
Arg Trp Asp Ile Val Arg Leu Ile Pro Pro Gln Thr Tyr Leu Gln Ala		
1540	1545	1550
Glu Gly Glu Asp Gly Gln Asn Leu Glu Lys Arg Arg Asn Leu Leu Asn		
1555	1560	1565
Cys Leu Ile Val Arg Ile Leu Lys Ala His Gly Asp Glu Gly Leu His		
1570	1575	1580
Ile Asp Gln Leu Val Cys Leu Val Leu Glu Ala Trp Gln Lys Gly Pro		
1585	1590	1595
Cys Pro Pro Arg Gly Leu Val Ser Ser Leu Gly Lys Gly Ser Ala Cys		
1605	1610	1615
Ser Ser Thr Asp Val Leu Ser Cys Ile Leu His Leu Leu Gly Lys Gly		
1620	1625	1630
Thr Leu Arg Arg His Asp Asp Arg Pro Gln Val Leu Ser Tyr Ala Val		
1635	1640	1645
Pro Val Thr Val Met Glu Pro His Thr Glu Ser Leu Asn Pro Gly Ser		
1650	1655	1660
Ser Gly Pro Asn Pro Pro Leu Thr Phe His Thr Leu Gln Ile Arg Ser		

[illegible]